



Assessing the feasibility of a one-stop approach to diagnosis for urological patients

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ABSTRACT

INTRODUCTION Conventional publicly funded out-patient services in many specialties are characterised by delays, fragmented diagnostic processes, and overloaded clinics. This is bad for patients as it is clinically dangerous; bad for managers who spend hours managing the failure; bad for doctors who respond by overloading clinics; and bad for purchasers who have to fund the multiple out-patient visits needed. Sound clinical and financial reasons exist for introducing more efficient diagnostic processes.

PATIENTS AND METHODS A total of 330 consecutive patients referred to the urology department of Guy's and St Thomas' NHS Foundation Trust were invited to attend one of nine one-stop clinics staffed by consultant urologists with specialist registrars, nurses, and clerical staff. Pre-clinic blood and urine tests were ordered based on the referral letter. Clinics had facilities to perform cystoscopy, ultrasound, and urinary flow studies. Correspondence was generated in real time, and a copy given to the patient.

RESULTS Overall, 257 patients attended the clinics. Twenty-three patients cancelled appointments and 50 patients did not attend. Pre-clinic tests were requested in 133 patients and were completed by 86% of the patients who attended. Of patients, 42% were diagnosed and discharged; 28% were listed for surgery, extracorporeal shock wave lithotripsy (ESWL), or referred to another specialty. About 30% of patients needed further out-patient review; in approximately two-thirds to complete a diagnosis and one-third to review the results of therapy initiated. An estimated 350 appointments and 550 patient visits to hospital were saved.

CONCLUSIONS A one-stop method of consultation is efficient across a range of urological presenting complaints, and dramatically reduces the need for follow-up consultations. It has potential to: (i) reduce delays to being seen in out-patients; (ii) lead to more cost-effective care; and (iii) increase safety and patient satisfaction. It should become the standard of care in urology, and is probably applicable in many other disciplines.

KEYWORDS

One stop – Office urology – Out-patients – Quality

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Out-patient practice in the UK NHS and many other public funded health systems is under extreme pressure. The current system suits no-one: patients often wait weeks to be seen by a specialist and then even straightforward problems can take several visits to hospital over several more weeks to resolve. This is bad for patients as it is clinically dangerous; bad for hospital managers who are forced to spend far too much time managing the degree of failure and inadequacy rather than putting in place better systems of care; and bad for doctors who respond by overloading clinics, rushing consultations, and engaging in activity to 'beat the system' on a patient's behalf. These activities, although

well-intentioned, are often flawed and inevitably fail many other patients.

The problems seem to be endemic and previous attempts to deal with them have failed to deliver really significant improvements. Simply working harder seems unlikely to be the answer since lack of commitment is not the problem. Recruitment of extra consultants and nurses has made little impact since the processes of diagnosis and clinical management to which they have been recruited are so inefficient. In addition, waiting-list initiatives and the appointment of locums to see new referrals make little impact. In fact, it could even be argued that they generally

make the problem worse by creating follow-up 'bubbles' 3 months later which have to be dealt with by the team that was not coping with the demand in the first place!

The NHS 'two-week wait' cancer initiative, whereby all patients who may harbour cancer are to be seen within 2 weeks of referral, has been an attempt to address this problem.¹ Unfortunately and inevitably, as with all selective prioritisation models, large numbers of patients who do not have cancer have been prioritised and large numbers of patients, many of whom have serious disease, have been deprioritised. In urology, this occurs for two reasons: (i) not all patients who turn out to have cancer present with the classical symptoms set out in the two-week wait referral criteria; and (ii) not all life- or kidney-threatening urological disease is cancerous.

A further serious problem of selective prioritisation is that the creation of a two tier queuing system means that well-meaning referrers bend the referral criteria in order to manoeuvre many more patients into the rapid queue than was ever intended. The illogicality of this selective prioritisation approach is further exemplified by bizarre clinical paradoxes whereby patients are prioritised who may have a disease which takes 8 years to progress (*e.g.* localised prostate cancer) whilst patients suffering appalling symptoms from other diseases (*e.g.* stone disease or serious urinary infection) are made to wait many weeks to be seen.

Access to the system is only part of the problem. The current models of care for many conditions are manifestly inefficient for both the patient and the hospital. Straightforward urological conditions are being diagnosed after four visits to the hospital which will often include an initial out-patient appointment, a visit for a scan, a visit for a cystoscopy, and another appointment to review all that has gone before. During those visits, the patient may encounter a number of

different urologists, including trainees of varying experience, who all communicate a partial diagnosis to the patient. It is no wonder that patients and their GPs end up confused, ill-informed, frustrated, and worried about the nature of the problem and its preferred solution. The new out-patient tariff system in the NHS has focused attention on the financial wastefulness of multiple out-patient visits as part of a fragmented approach to diagnosis. The costs in terms of time off work for patients, hospital transport, quadruplication of clinical correspondence, wasted out-patient visits, and telephone enquiries are enormous. The cost in terms of delayed diagnosis of serious disease is incalculable.

It is our assertion that redesigning the service to deliver better care presents the best chance of success. In essence, a system needs to be designed to deliver tailor-made, highly efficient, diagnostic processes which might then, in turn, allow patients to be seen when they want to be seen. This would be truly patient centred. A one-stop approach to diagnosis is the goal, whereby consultations, imaging, cystoscopy, basic urodynamics and tissue biopsy are offered to those who need them on their first visit to hospital.

We have tested the feasibility of a one-stop approach to diagnosis for all urological referrals to our unit.

Patients and Methods

A total of 330 patients referred between July and October 2004 to the St Thomas' wing of the joint Guy's and St Thomas' urology service were invited to attend one of nine pilot 'one-stop' clinics at Guy's Hospital run between 13 August and 10 December 2004. The patient cohort was consecutive to avoid selection bias. Two-week wait referrals were excluded due to the time constraints of the two-week wait rules. Laboratory investigations were requested in advance of the consultation as appropriate.

Table 1 Investigations performed during the one-stop clinics

Referrals seen (n)	Ultrasonography (% seen)	Cystoscopy (% seen)	X-ray (% seen)	Uroflowmetry (% seen)	Total (% total tests done)
LUTS (58)	43 (74%)	18 (31%)	4 (7%)	36 (62%)	101 (30%)
UTI (51)	49 (96%)	16 (31%)	15 (29%)	12 (24%)	92 (27%)
Haematuria (25)	24 (96%)	25 (100%)	2 (8%)	1 (4%)	52 (16%)
Peno-scrotal (69)	30 (43%)	4 (6%)	1 (1%)	1 (1%)	36 (11%)
Incontinence (10)	10 (100%)	4 (40%)	1 (10%)	1 (10%)	16 (5%)
Other (15)	9 (60%)	5 (33%)	1 (7%)	3 (20%)	18 (5%)
Raised PSA (6)	2 (33%)	0 (0%)	0 (0%)	3 (50%)	5 (1%)
Stones (6)	5 (83%)	3 (50%)	2 (33%)	1 (17%)	11 (3%)
ED (17)	3 (18%)	0 (0%)	0 (0%)	1 (6%)	4 (1%)
Total (257)	175 (52%)	75 (22%)	26 (8%)	59 (18%)	335

Clinics were staffed by three consultant urologists and either one or two specialist registrars with appropriate support staff. Ultrasound examinations performed on the day by a consultant radiologist or senior specialist registrar in the imaging department were available, and cystoscopy and flow studies were available in the clinic, performed by the urologist who had consulted with the patient. The clinic was also staffed by two secretaries, who typed the GP letters in real time, giving one copy to the patient prior to departure.

Feedback on the service was obtained by completion of questionnaires to identify the strengths and weaknesses of the service. Suggestions were then incorporated into the next clinic, such that the pilot could evolve and continuously improve through a series of plan/do/study/act (PDSA) cycles.

Results

Overall, 330 requests for consultation were analysed. Twenty-three patients cancelled appointments and 50 patients failed to attend (15%), leaving 257 patients who attended the pilot clinics. In comparison, analysis of our conventional clinic data revealed a failure to attend rate of 30%. Patients who failed to attend were managed on a case-by-case basis. Pre-clinic tests were requested in 133 of 330 (40%) referrals. Of these patients, 106 of 133 (80%) attended the pilot clinics, and 91 of 106 (86%) had successfully completed the pre-clinic pre-investigations. Of the pre-clinic investigations, 96% were urine or blood tests. The high level of compliance of the patients in completing pre-clinic tests is notable.

Table 1 shows the breakdown of the 257 clinic attendees by diagnosis, and the investigations performed during the one-stop clinic. Ultrasound examination was the most

Table 2 Transit times at the one stop clinic classified by diagnosis

Referral group	Minimum (min)	Maximum (min)	Median (min)
ED	16	1455	56
Haematuria	29	222	119
Incontinence	60	183	118
LUTS	20	252	108
Other	16	186	91
Peno-scrotal	8	171	44
Raised PSA	43	86	64
Stones	15	147	96
UTI	44	250	120

utilised diagnostic modality (52% of cases). A total of 75 cystoscopies were performed, with 22% of the total attendees requiring this investigation.

Table 2 demonstrates the transit times through the pilot clinics. Patients requiring both cystoscopy and ultrasound moved slowly through the clinic. Notwithstanding this, the longest median time spent at the clinic was still only 119 min for patients with incontinence, and 118 min for patients with haematuria. The reasons for these slow transits are many but principally relate to the design of the existing out-patient facilities, where imaging, ultrasound and cystoscopic facilities were widely dispersed.

Table 3 shows the outcome of the clinic interaction according to presenting complaint. Of the 257 study cohort,

Table 3 Outcome of patients attending one-stop clinics

Referral group (n)	Follow-up for treatment	Follow-up for diagnosis	In-patient surgery	Discharged	Referred to other units	Total
LUTS (58)	8 (14%)	21 (36%)	6 (10%)	21 (36%)	2 (3%)	58 (23%)
UTI (51)	7 (14%)	13 (25%)	5 (10%)	24 (47%)	2 (4%)	51 (20%)
Peno-scrotal (69)	2 (3%)	2 (3%)	37 (54%)	25 (36%)	3 (4%)	69 (27%)
Haematuria (25)	0 (0%)	3 (12%)	6 (24%)	15 (60%)	1 (4%)	25 (10%)
Other (15)	0 (0%)	4 (27%)	2 (13%)	8 (53%)	1 (7%)	15 (6%)
ED (17)	0 (0%)	3 (18%)	0 (0%)	11 (65%)	3 (18%)	17 (7%)
Incontinence (10)	3 (30%)	4 (40%)	1 (10%)	2 (20%)	0 (0%)	10 (4%)
Raised PSA (6)	2 (33%)	3 (50%)	0 (0%)	1 (17%)	0 (0%)	6 (2%)
Stones (6)	0 (0%)	1 (17%)	3 (50%)	1 (17%)	1 (17%)	6 (2%)
Total	22 (9%)	54 (21%)	60 (23%)	108 (42%)	13 (5%)	257

181 (70%) patients did not require further urology out-patient follow-up, either because they had been diagnosed and discharged, referred for treatment in the form of surgery or lithotripsy, or referred to another specialty.

Of patients, 9% were followed up to assess the results of medical treatment, most commonly in the lower urinary tract symptoms (LUTS), urinary tract infections (UTI) and incontinence groups. The majority of these LUTS patients had been started on α -blockers. Follow-up for diagnosis was required in 21% of patients. The commonest second-line diagnostic tests ordered were prostate biopsy, computed tomography (CT) scans, pressure/flow urodynamics, and renograms.

Anecdotally, the PDSA cycle analysis proved an effective tool for testing hypotheses and solving problems, although we have no hard numerical evidence that this approach was successful.

Discussion

This study has shown that a one-stop approach to urological diagnosis is achievable in the majority of patients referred to our service. The approach is popular with patients, clinicians, and managers. It can transform diagnostic efficiency; it can reduce the need for expensive follow-up; and it virtually eliminates the time between referral and a decision on definitive management of the patient's condition. Patients with serious disease can be treated more quickly and patients with little amiss can be re-assured more quickly. All told, during this nine clinic pilot, 80% of patients left the clinic with a diagnosis; 42% were discharged to their GP; around 550 visits by patients to hospital were saved; and an estimated 350 follow-up appointments were saved.

Two-week wait referrals were excluded from the pilot clinics due to time constraints. This is reflected in the proportion (70%) of patients being discharged from the one-stop clinics. We fully appreciate that this figure may reduce once these patients, with their complex problems, are included in the data. It also explains the apparent paucity of referrals for certain conditions, such as elevated prostate-specific antigen (PSA), which form a significant part of urological practice.

A one-stop approach to diagnosis would seem to allow a much higher quality of care. The Institute of Medicine, in its landmark publication *Crossing the Quality Chasm*,² stated that, to be high-quality, care must be effective, efficient, safe, patient-centred, timely and equitable. All these criteria appear to have been met in this pilot study.

A one-stop consultation is a complex clinical interaction and accurate communication with patients of the findings of the various strands of diagnosis is vital. Good communication is made even more important when there is no second

consultation a few weeks down the line when uncertainties might be resolved. With this in mind, all correspondence arising from these consultations was generated 'real time' and was given to the patient before they left the clinic as well as being sent to the referrer. A period of reflection after the core clinical interactions would seem to be sensible before a patient leaves the clinic.

Long-established clinical and administrative roles may need to be redefined in the light of these pilots. In particular, the role of the clinic clerk changed to approximate a 'clinic conductor' who steered, cajoled, advised, and smoothed the passage of patients through a complex visit to hospital.

The patient response to the one-stop service as assessed by questionnaire, was overwhelmingly positive. The most frequently cited benefits were having the consultation and tests on the same day, and the fast, efficient and friendly service. They also appreciated having a copy of the clinic letter on the same day. The most frequently cited problems were inadequate signing around the building, and frustrations with the walking distances between the different diagnostic areas.

The version of one-stop activity delivered in these pilot clinics could be developed and improved upon to improve efficiency further and reduce low-value follow-up (*e.g.* by the introduction of CT scanning, urodynamics, and prostate biopsy to selected patients), and by telephone follow-up, and improving shared care with GPs to patients with stable disease.

The pilot activity in this study was delivered from conventional facilities. This was far from ideal. Consultations, imaging, and cystoscopy took place in facilities which were widely dispersed through the hospital. This led to slow transit times through the clinic with some patients losing their way between facilities. To be truly effective, a new type of facility is probably needed as the traditionally designed out-patient department fails to provide an environment that is suitable for modern, efficient, urological care. It needs to be replaced by a facility where consultation, investigation, administration, research and education can take place side by side. This will become an environment that will be ideal for training and assessing the new breeds of diagnostician that are envisaged in British practice *viz.*, 'office urologists', specialist nurses, GPs with a specialist interest, and students. To this end, Guy's Hospital opened a purpose-designed, diagnostic urology centre in January 2008, and the decision to fund this centre was largely influenced by the success of this pilot study.

A full cost-benefit analysis has not been undertaken, but we estimate that 550 visits by patients to hospital and 350 out-patient appointments were saved during the pilot. Determining an appropriate financial tariff for a one-stop consultation will be essential. It seems unlikely that the

NHS tariff for a new patient attendance in 2008 of £160 can realistically be expected to cover the costs of the complex diagnostic interactions presented here. It may be that there will need to be special tariffs developed that reflect the complexity of the interaction. A more sophisticated model of outpatient tariffs might be:

Level one Consultation alone.

Level two Consultation with imaging/flow studies.

Level three Consultation with either: (i) imaging/flow studies and cystoscopy; or (ii) biopsy.

Level four Above plus CT or pressure/flow urodynamics.

To be truly effective, the one-stop approach will need to be combined with other approaches to maximise efficiency and effectiveness in diagnostic urological practice. A Bostonian think-tank, The Institute for Health Care Improvement,³ has defined this model of care as an 'advanced access model'. The key principles of advanced access are to:

1. Balance supply and demand to ensure an even flow of work across the service.
2. Minimise the queues to enter the system, to avoid any one consultant's waiting list becoming too long and unfairly disadvantaging their patients.
3. Deal with the backlog to recalibrate the system, hence reducing waiting times for appointments.
4. Plan for contingencies such as governance days, holidays, urological congresses and examinations to avoid disruption to the service.
5. Change internally generated demand through regulating follow-up activity thus avoiding low-value follow-up and generating time for new patients to be seen.

With this in mind, with the opening of the new out-patient centre, we have developed out-patient diagnostic services

so that all referrals, including two-week wait, are seen within 10 days of referral in generic one-stop clinics.

We believe that our one-stop clinics, both from the perspective of early appointments and diagnostic approach, are the only feasible way for trusts to achieve the forthcoming 18-week target from referral to treatment.

We have redesigned our approach to long-term care by introducing multidisciplinary disease-based clinics for the urological cancers, stone disease, erectile dysfunction, and incontinence. We aim to develop alternatives to face-to-face consultation with doctors by expanding nurse-led clinics, by introducing remote and telephone follow-up, by delivering care on designated single-condition patient days, and by introducing a network of expert patients to support their fellow sufferers.

Conclusions

A one-stop method of consultation is effective and efficient across a range of presenting complaints. The advanced access model provides hope that the delays that characterise so much of out-patient practice in publicly funded systems could be eliminated; it might provide an environment where research and teaching are better integrated into routine patient care; and it offers opportunities for clinicians to train effectively and efficiently. It should become the standard of care in urology, and is probably applicable in most other surgical specialties.

References

1. Department of Health. *The New NHS, Modern and Dependable*. London: Stationary Office, 1997.
2. Committee on Quality of Health Care in America, Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press, 2001.
3. <www.ihc.org>.